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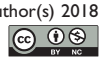

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A new dementia treatment with quieting focus, subtle sound vibration, and intentional shared silence: Introducing Resonant Silence Technique: Innovative practice

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Abstract
High levels of sensory stimuli in care facilities have been shown to negatively affect people with dementia. This article describes the development and application of Resonant Silence Technique which endeavors to create a calming and peaceful atmosphere through multiple periods of silence following sound. The use of a quieting environment, subtle sound, and intentional silence is reported to help people with dementia feel less anxious, more relaxed and cooperative, emotionally appreciative, empathetic, and to improve eye contact and communication. Other positive benefits include improvements in concentration. Suggestions are made for further work to measure the impact of this approach.

Keywords
brainwave frequencies, dementia, hippocampus neuronal regeneration, mindfulness, music, neuroscience, Resonant Silence Technique, relaxation, sensory stimuli, silence

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Introduction

Resonant Silence Technique (RST) is a new rehabilitative treatment approach for adults with dementia. RST creates what has been described as a calming and peaceful atmosphere through the synergy of certain aspects of sound and periods of silence that are observed after each of the sounds has been allowed to slowly and completely fade.

Silence has been found to be relaxing and therapeutic, restoring equilibrium and reducing brain wave frequency while lowering blood pressure, heart and respiratory rates (Bernardi, Porta, & Sleight, 2006; Kim, Lee, Kim, Whang, & Kang, 2013; Kim, Rhee, & Kang, 2014; Kriste et al., 2015; Siegel, 1999).

The two aspects of sound that RST primarily focuses on are vibrato and harmonics. "Vibrato is the pulsating, wavy variation in pitch that richens the tone of a singing voice, wind instrument or string instrument" (Gardner, 1990, p. 94), lulling and quieting the listener by entraining them to alpha and theta brain waves (Gardner, 1990).

Harmonics are used in RST for they decrease the activity of brainwaves (D'Angelo, 2005) and when ting-shas and singing bowls are played, they each produce sounds in the theta range, which is associated with profound levels of relaxation, internality (Gaynor, 1999) and a 'deep quietness of body, emotions and mind' (Schwartz, 1995, pp. 148–149).

During an RST therapeutic group session, the RST facilitator gently shares sounds from instruments carefully chosen for their easily discernible vibrato and harmonics. Then, after each of the sounds has been allowed to fade gradually and completely, a period of silence is shared.

The majority of the sounds that RST shares do not have a song-like structure. Single vocalized syllables, notes, and brief musical phrases are the predominant sounds in an RST therapeutic session. These kinds of sounds are shared so as not to stimulate the listener's memory and cognition or connect with the cognitive centers of the brain. RST seeks, instead, to connect with the non-cognitive centers in the brain, centers that have not been damaged by dementia. During the silence following sound, in these healthy cranial areas, the brain can look in on itself, integrating what it is exposed to, repairing the damaged neural pathways that have been causing dysfunctional behavior and creating new neural circuitry that manifests in better health and improved function (Kim et al., 2014; Kriste et al., 2015; Siegel, 1999).

Developing RST

I have always been drawn to silence and quiet places like forests, fields, deserts, mountains, and silent meditation retreats for rest and renewal. Being a singer and wishing to combine singing and silence, I studied ancient Jewish chant, graduating as a Cantor from The Jewish Theological Seminary in 1979. As a Cantor, I shared music and quiet companionship with folks in hospitals, hospice, and skilled nursing facilities. This deeply fulfilling work led me to complete the Music for Healing and Transition Program (MHTP) in 2001 and become a Certified Music Practitioner (CMP) trained to play at the bedside in care facilities. In 2006, I attended an MHTP conference. After the opening presenter finished speaking, the room grew very quiet. When the quiet ended, I realized that I felt totally refreshed and clear. If a brief time of silence after sound could be so beneficial for me, perhaps intervals of silence following sound could also help the folks with dementia with whom I was currently working. From this beginning, I created Resonant Silence Technique.

Running an RST session

RST therapeutic group sessions are held in rooms in skilled nursing facilities that have been specially selected for their quietness; rooms that are distant from noisy areas (Dewing, 2009) and can be closed off from resident and nursing traffic.

Groups are usually limited to 5 to 15 participants so that individual attention can easily be given to each person. In addition to the RST facilitator, each session is attended by a staff member-caregiver who can provide behavioral and emotional support and direction in case the need arises.

During an RST session, the RST facilitator focuses on quieting her/his body and mind as he/she shares simple vocal tones, cedar, bamboo and silver transverse flutes, singing bowls, bowed psaltery, guitar, and Tibetan ting-shas (tuned, rounded, bell-like chimes). After each sound has been allowed to gradually and totally fade, a space of silence is observed.

The duration of the facilitated silent segments varies depending on how far the RST session has progressed. At the start of an RST group session, the silences are held from 5 to 10 seconds, and as the therapeutic process proceeds, the periods of silence are gradually increased to 15 to 30 seconds each.

A simple, gentle, well-known song may also be shared in the beginning of the session when the facilitator is informed that there are multiple cognitive levels among the individuals in his/her dementia group. Those identified as functioning on a higher cognitive level have been observed to sway and/or sing along with the song.

Those identified as lower cognitively functioning and who appear passive as the song is sung have been observed to participate more fully in the final phase of the RST therapeutic process after successive periods of silence following sound have been shared.

In this final, more interactive phase, well-known poetry is shared for 3 to 15 minutes. Participants have been seen to recite the words and move to their rhythms.

Findings

In an RST therapeutic group, participants have often been observed to begin the session, slumped in their seats with little or no facial expression or displaying, 'flat affect'. As the RST session unfolds, participants are seen to raise their bodies to sit more fully upright, often smiling, and making eye contact. Then, as the RST session draws to a close, group members have been observed to speak about how amazed they are that silence can be so relaxing and that all their worries and stresses are gone. They speak as well of how wonderful, calming, soothing, peaceful, and therapeutic the RST experience has just been for them.

Group members have been seen to hold out their hands to be held, to share well wishes and totalk with other group members even inquiring about their well-being. Members of the group have, as well, been seen to wave and speak their goodbyes and appreciation for the preceding session.

When asked how her mind felt after an RST cycle of sound and silence, a participant said that her mind was blank. This participant's comment provides evidence of the achievement of one of the underlying goals of RST which is the quieting and clearing the mind of perceived thoughts. With less perceived thought, stress and anxiety also appear to lessen.

Staff caregivers have also reported that the beneficial effects of the RST session carry over and appear to be sustainable. They have reported that after regular twice per week RST

sessions during the first month of treatment and then once per week for the next two months, some very positive behavioral changes have been observed: a person who was only able to sit still for a few minutes before the RST sessions can now watch a movie for 1 hour; an individual who was largely uncooperative before RST, now works better with staff and can easily take direction; a person who had not spoken more than a few words for five years began to speak in whole sentences, confiding in caregivers; and an individual who was wheelchair-bound stood up from his wheelchair.

Discussion and next steps

Recent scientific research appears to provide a further explanation for the rehabilitative importance of silence. Kriste et al. (2015) has found that in silence, new neurons are generated in the hippocampus which is the brain region associated with the formation of memory and learning involving the senses (Kriste et al., 2015). While preliminary, these findings suggest that silence could be therapeutic for conditions like depression and Alzheimer's which are associated with decreased rates of neuron regeneration in the hippocampus (Kriste et al., 2015).

Additional research is needed to evaluate the physiological changes that take place during the beneficial behavioral shifts observed within and following RST sessions. Measuring and tracking heart rate, galvanic skin response, blood pressure, respiratory frequency, brain wave production (EEG) etc. during and after RST sessions will produce the quantifiable data needed to bring RST more fully to the attention of the medical dementia treatment community. When this happens, individuals with dementia, autism, and other neurological and cognitive disorders can more widely benefit from the therapeutic synergy of subtle sound and intentional silence provided by RST.

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Miriam I Fein is the creator of Resonant Silence Technique (RST). Being a singer and drawn as well to silence and silent places for personal rest and renewal, Miriam experienced how restorative group silence can be. Then, using gentle tones leading into periods of silence, she created Resonant Silence Technique for her group work with individuals with dementia and other neurological and cognitive disorders. She continues to see significant positive behavioral change with the individuals she works with. Miriam holds a Bachelor of Comparative Religion from New York University (1972), a Bachelor of Sacred Music (BSM) from The Jewish Theological Seminary (1979), and is certified as a Cantor/Minister/Educator. She is also a Certified Music Practitioner (CMP) (2001) trained to play and sing at the bedside in hospitals, skilled nursing facilities, and hospice. She is a singer, multi-instrumentalist, poet, composer, and songwriter with two recordings, *Soul Calling* and *Come Beloved*. Miriam Fein lives in La Conner, Washington, with her partner, Simme, and their two dogs, Baxter and Lucy. Please refer to www.resonantsilencetechnique.com for further information.